Product Manual

PSU-MIDSPAN-USB-1-C KIT

Single Channel Midspan USB Power Injector with Cables

Crestron Electronics, Inc.

The original language version of this document is U.S. English.
All other languages are a translation of the original document.

Regulatory Model: M202228002

Contents

Overview

The PSU-MIDSPAN-USB-1-C KIT includes the PSU-MIDSPAN-USB-1, as well as the CBL-USB3G2-C-C-3 and CBL-USB3G1-C-C-6 cables.

The PSU-MIDSPAN-USB-1 single point midspan power injector allows data and video pass-through to a USB-C device. The PSU-MIDSPAN-USB-1 supplies up to 100 W to the host while allowing high speed data transfers of 10 Gbps (USB 3.2) and 480 Mbps (USB 2.0).

It also supports DisplayPort™ Alternative Mode (DP Alt Mode) at a maximum rate of HBR2 for both mixed (4k30) and full (5120x2160 @30 Hz in 5K Ultra-Wide and 5120x1440 @60 Hz in 5K Super-Wide) DP Alt Mode.

CBL-USB3G2-C-C-3 and CBL-USB3G1-C-C-6 are USB cables with USB Type-C® connectors. The cables are capable of transporting the latest USB 3.2 signals with data rates up to 10 Gbps. They are backward compatible with USB 2.0 and are officially USB-IF certified.

> **NOTE:** The PSU-MIDSPAN-USB-1 is referred to as Midspan in the rest of the document.

Features

This section provides the following information:

- PSU-MIDSPAN-USB-1 Features
- CBL-USB3G1-C-C-6 Features
- CBL-USB3G1-C-C-3 Features

PSU-MIDSPAN-USB-1 Features

Key features include:

- Powers one USB-C® host for a maximum of 100 W
- Supports USB 3.2 data pass-through up to 10 Gbps
- Supports USB 2.0 data pass-through up to 480 Mbps
- DisplayPort™ 1.4 Alternative Mode (DP Alt Mode) pass-through compatible
- Mixed Mode functionality: DisplayPort and USB 3.2 data available simultaneously
- No configuration or programming required
- Attachable to a Crestron FlipTop™ cable enclosure

Midspan USB-C Power Injector

The PSU-MIDSPAN-USB-1 is designed to be implemented as a Midspan USB-C power injector to a host. USB-C charging is available at 5, 9 or 15V at 3 A, or 20V at 3 or 5 A. To meet USB 3.2 requirements and achieve 100 W power delivery, 5A-rated e-marked cable must be used from the PSU-MIDSPAN-USB-1 to the host.

> **NOTES:**
>
> - The PSU-MIDSPAN-USB-1 is a TAA-compliant product suitable for government deployments and can be purchased separately.
> - The Midspan increases the charging capacity of a laptop from 60 W to 100 W.

USB Data Pass-Through

The PSU-MIDSPAN-USB-1 serves as a data and video pass-through for USB 2.0, USB 3.2, and DP Alt Mode. It supports high speed USB data transfer rates of 480Mbps via USB 2.0 and 10Gbps via USB 3.2. Additionally, DP Alt Mode is supported with video resolutions of HBR2 at 4k30 in mixed mode, and 5120x2160 @30 Hz (5K Ultra-Wide)/5120x1440 @60 Hz (5K Super-Wide) in full DP Alt Mode.

> **NOTE:** The PSU-MIDSPAN-USB-1 has a pass-through connection and does not count as a tier in USB network topology.

Mounting Options

The PSU-MIDSPAN-USB-1 can be attached to a Crestron FlipTop cable enclosure, mounted on a wall or surface using the included bracket, or used freestanding.

CBL-USB3G1-C-C-6 Features

Key features include:

- USB cable with USB Type-C® connectors
- Supports SuperSpeed USB 3.2
- Backward compatible with USB 2.0
- Supports 4K60 4:4:4 DisplayPort™ Alt Mode video
- Provides 100 W via USB Power Delivery (PD) for fast charging devices
- Thin and durable cable with tight bend radius and premium design
- USB-IF certified
- 6 ft (1.8 m) length

All-In-One Cables

USB Type-C cables offer data, video, and power connectivity. The CBL-USB3G1-C-C-6 provides support for DisplayPort™ Alt Mode to deliver up to 4K60 video performance in addition to SuperSpeed signal transmission. The CBL-USB3G1-C-C-6 also provides up to 100 W of power to fast charge laptops, tablets, and smart phones.

Premium Design

The CBL-USB3G1-C-C-6 is a premium cable that can be relied on for optimal end-to-end system performance. All current generation Crestron cables feature a uniform industrial design that has enabled them to become thinner, more flexible, and more durable. Rugged matte black connectors provide a reliable connection and have a stylish appearance, making the cable perfect for inclusion in high-end Crestron systems.

CBL-USB3G1-C-C-3 Features

Key features include:

- USB cable with USB Type-C® connectors
- Supports SuperSpeed USB 3.2
- Backward compatible with USB 2.0
- Supports 4K60 4:4:4 DisplayPort™ Alt Mode video
- Provides 100 W via USB Power Delivery (PD) for fast charging devices
- Thin and durable cable with tight bend radius and premium design
- USB-IF certified
- 6 ft (1.8 m) length

All-In-One Cables

USB Type-C cables offer data, video, and power connectivity. The CBL-USB3G2-C-C-3 provides support for DisplayPort™ Alt Mode to deliver up to 4K60 video performance in addition to SuperSpeed signal transmission. The CBL-USB3G2-C-C-3 also provides up to 100 W of power to fast charge laptops, tablets, and smart phones.

Premium Design

The CBL-USB3G2-C-C-3 is a premium cable that can be relied on for optimal end-to-end system performance. All current generation Crestron cables feature a uniform industrial design that has enabled them to become thinner, more flexible, and more durable. Rugged matte black connectors

provide a reliable connection and have a stylish appearance, making the cable perfect for inclusion in high-end Crestron systems.

Specifications

Product specifications for the PSU-MIDSPAN-USB-1-C are provided below.

Product Specifications

Connectors

G	(1) M3 x 0.5 mm screw; Chassis ground lug
24V 6.0A	(1) DC power connector; 24VDC power input (power pack included)
TO DEVICE	(1) USB Type-C® connector, female; Digital video/audio output using DP Alt Mode; USB 3.2 Gen2 data support (USB 2.0 High Speed 480 Mbps is also supported); Power 5V, 7.5 W
CONTACTS	(1) 2-pin 3.5 mm detachable terminal block; Normally open
TO HOST[1]	(1) USB Type-C® connector, female; Digital video/audio input using DP Alt Mode;[2] USB 3.2 Gen2 data support (USB 2.0 High Speed 480 Mbps is also supported); Fixed SPR power injection up to 100 W (Standard Power Range)
SERVICE	(1) USB 2.0 Type-A connector, female; Used for firmware updates

Controls and Indicators

PWR	(1) Two-color LED; Solid Green indicates that the device is operational; Solid Orange indicates that the device is powering on; Flashing Orange and Green indicates that the device firmware upgrade is in progress.
Contact Closure	(1) Push button used to close contacts
RESET	(1) Recessed push button for hardware reset

Video

Maximum Resolutions (DP ALT Mode Video)	DP Alt Mode mixed: Up to 4k30 (v1.4 / HBR2 max); DP Alt Mode full: Up to 5120x2160 @30 Hz (5K Ultra-Wide) or 5120x1440 @60 Hz (5K Super-Wide)

Power

Power Pack (Included)	Input: 100–240VAC Output: 24VDC 6A Model: PW-2460DU

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)

Construction

Chassis	Metal, black finish, ventilation top and sides
Mounting	Freestanding, wall or table surface mount (with included mounting bracket), or attach to a Crestron FlipTop cable enclosure

Dimensions

Height	1.00 in. (25 mm)
Width	4.41 in. (112 mm)
Depth	5.75 in. (146 mm)

Weight

13 oz (400 g)

Compliance

Regulatory Model: M202228002

FCC Part 15 Class B, IC Class B, CE, UL® Listed for US and Canada/Intertek® Listed for US and Canada

Notes:

1. Certain laptops and USB-C cables may not support 100 W charging or DP Alt Mode pass-through. For more information, refer to the Knowledge Article 000003115.
2. The host laptop must support DP Alt Mode on the USB-C charging port to transmit video.

Dimension Drawings

5.75 in.
(146 mm)

5.65 in.
(144 mm)

CONTACTS

USB 6.0A 24V RESET

TO DEVICE

CRESTRON

PSU-MIDSPAN-USB-1

MIDSPAN POWER INJECTOR

PWR   SERVICE   —— TO HOST ——

100W USB

1.00 in.
(25 mm)

PWR   SERVICE   —— TO HOST ——

100W USB

4.41 in.
(112 mm)

CONTACTS   TO DEVICE   RESET G

USB   24V ⎓ 6.0A
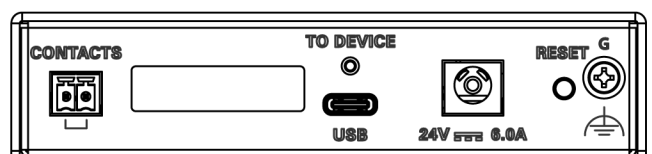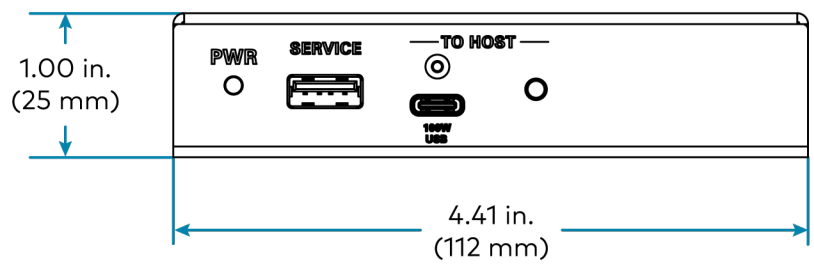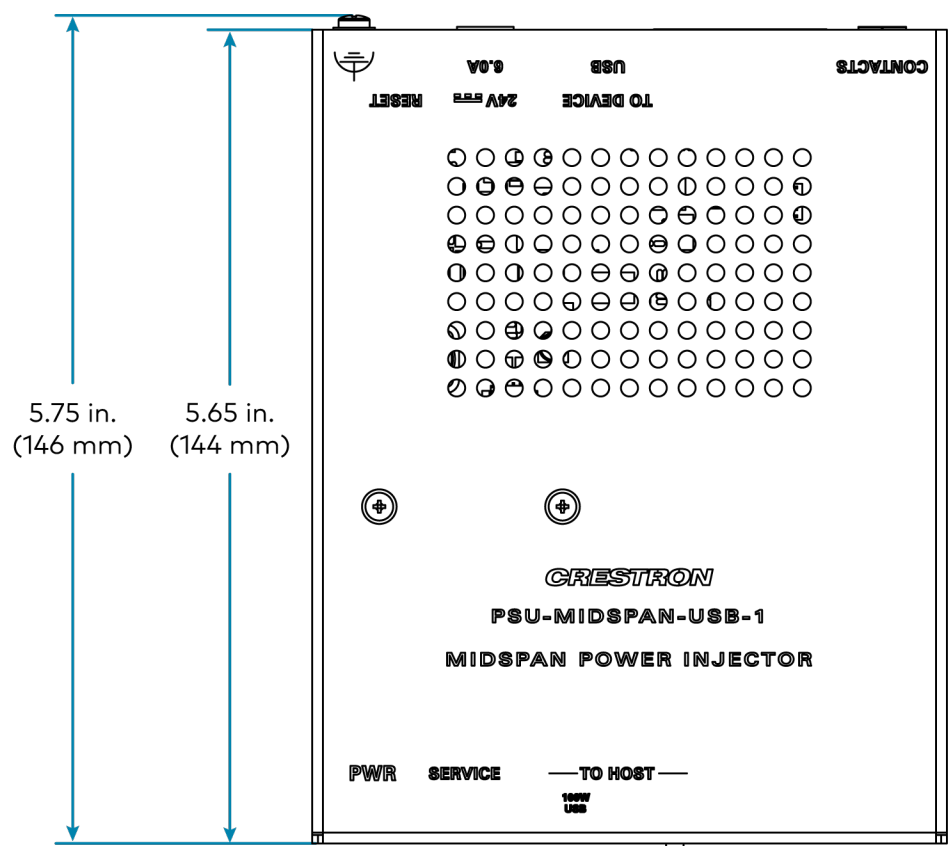
Installation

This section provides the following information:

- In the Box
- Midspan Installation
- Connect the Device
- Observe the LEDs

In the Box

| Qty.	Description
1	PSU-MIDSPAN-USB-1, Single Channel Midspan USB Power Injector
1	CBL-USB3G1-C-C-6
1	CBL-USB3G2-C-C-3
	Additional Items
1	Mounting Bracket, Midspan (2064004)
1	Mounting Bracket, Power Supply (2064005)
1	Power Pack, 24 VDC, 6A, Barrel Connector (2056363)
1	Power Cord, Cable ASSY, 6 ft 7 in. (2001134)
2	Screw, 10-32, 1/2 in., Pan, Philips (2056540)
2	Screw, 08-8B, 3/8 in., Pan, Philips (2007278)
2	Screw, M3 X 0.5 X 6MM, Pan, Philips (2058870)
4	Tie Wrap, Mounted, 5 in., Nylon, (2064282)
2	Hardware, Miscellaneous, Velcro Cinch Strap, 12 in. X 1 in. (2064307)

Midspan Installation

Mount the Midspan to a Wall or a Table

The Midspan can be mounted onto a flat surface such as a wall or table.

> **NOTE:** The Midspan comes installed to its mounting bracket.

Complete the following procedure to mount the Midspan to a flat surface:

1. Place the Midspan mounting bracket on the flat surface.
2. Mark the Midspan mounting bracket keyhole slot locations using the slots as a template.
3. Drill two holes into the flat surface through the marked locations.
4. Secure the Midspan mounting bracket by inserting two screws (not included) through the bracket's keyhole slots and into the pre-drilled holes. Be sure to choose screws of the appropriate length and type to meet your specific installation requirements.
5. Tighten the screws.
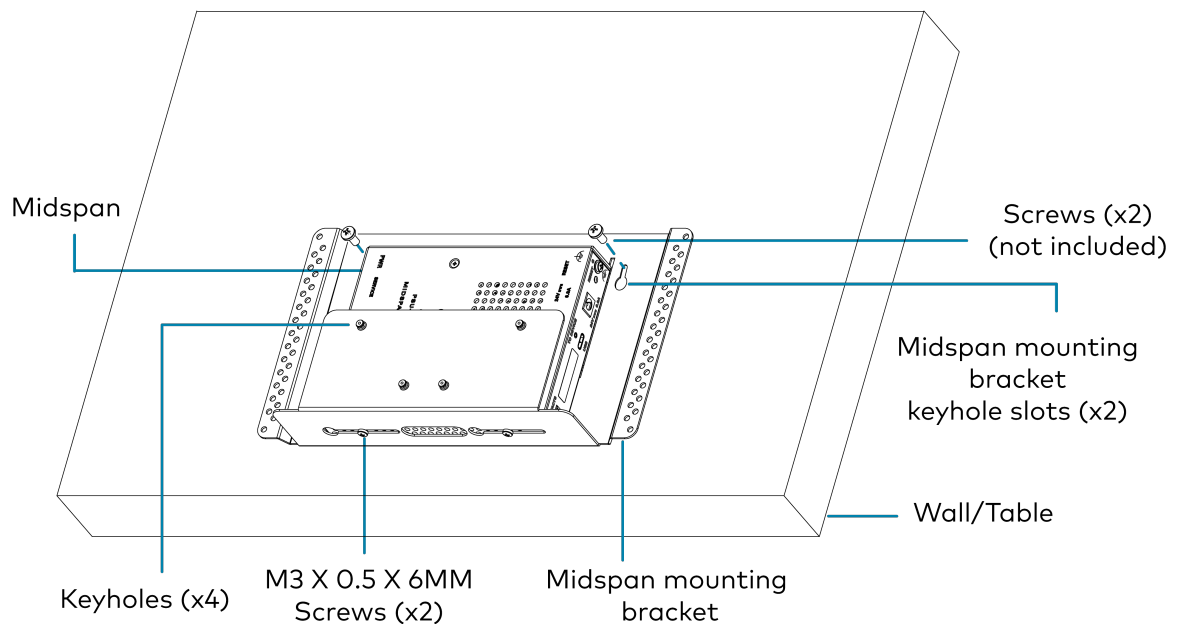
The Midspan mounting bracket is now mounted to a wall or table. To connect the Midspan, refer to .

Mount the Power Supply to a Wall or a Table

The power supply can be mounted onto a flat surface such as a wall or table.

Complete the following procedure to mount the included PW-2460DU power supply to a flat surface:

1. Route the Velcro® Cinch straps through the six strap slots on the corners of the power supply mounting bracket as shown in the image below.

2. Place the power supply mounting bracket on the flat surface.
3. Mark the screw hole locations using the power supply mounting bracket's screw holes as a template.
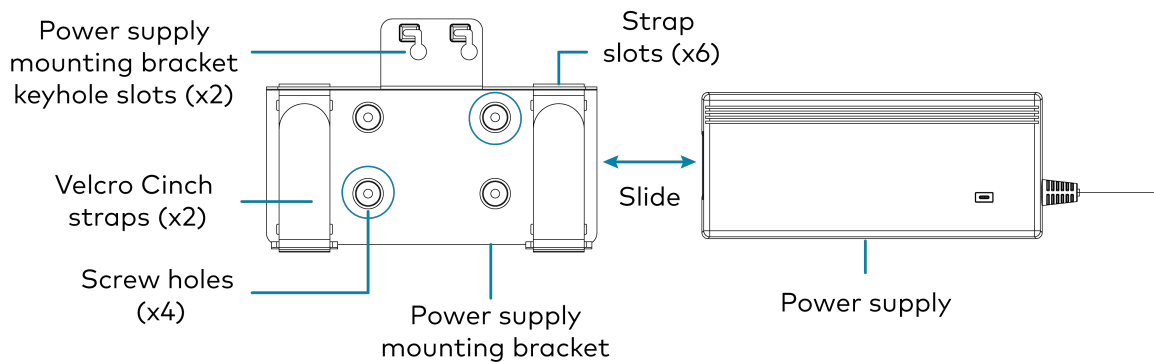
4. Drill two diagonal holes into the flat surface through the marked locations.

> **NOTE:** There are four screw holes on the mounting bracket. It is recommended to use two diagonal screw holes to mount the bracket.

5. Secure the power supply mounting bracket by inserting two screws (not included) through the bracket's screw holes and into the pre-drilled holes. Be sure to select screws of the appropriate length and type to match your specific installation requirements.
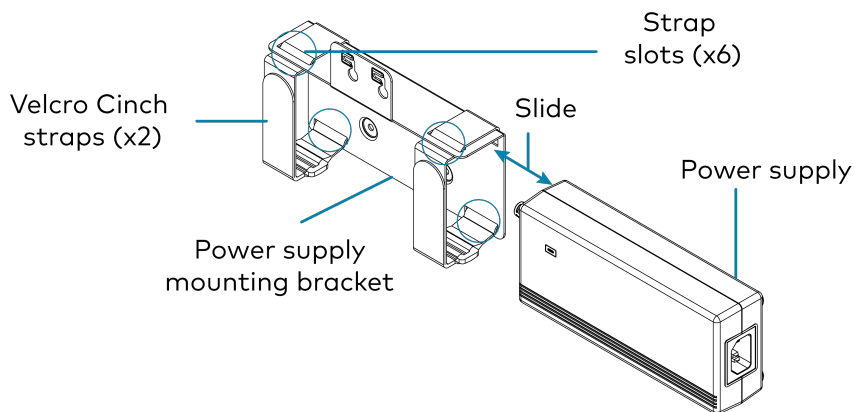

Power supply mounting bracket

Screws (x2) (not included)

Power supply

Wall/Table

6. Tighten the screws.
7. Slide the power supply through the power supply mounting bracket.
8. Wrap the Velcro Cinch straps around the power supply and tighten the straps to secure the power supply to the power supply mounting bracket.

The power supply mounting bracket with the power supply are now mounted to a wall or a table. To connect the power supply, refer to Midspan Installation on page 12.

Mount the Midspan to a FlipTop™ Enclosure
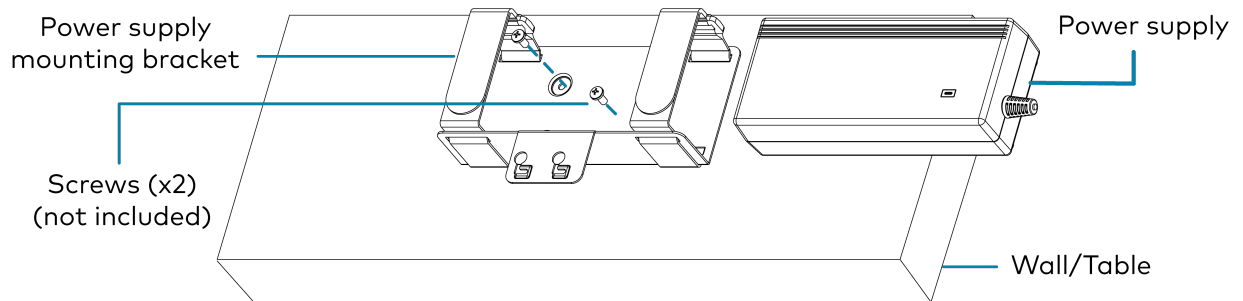
The Midspan can be mounted to the FT2-202-ELEC-PTL, FT2-202-MECH-PTL, FT2-700-ELEC-PTL, FT2-700-MECH-PTL, FT2-1200-ELEC-PTL, FT2-1200-MECH-PTL, FT2-1400-ELEC-PTL and FT2-1400-MECH-PTL FlipTop enclosures.

Complete the following procedure to mount the Midspan to a FlipTop enclosure:

1. Insert two 10-32, 1/2 in. screws (included) into the FlipTop screw holes on the FlipTop enclosure and turn 2-3 rotations by hand.
2. Place the Midspan mounting bracket keyhole slots onto the two 10-32, 1/2 in. screws (included) attached to the FlipTop.
3. Slide the Midspan mounting bracket down and tighten the 10-32, 1/2 in. screws (included) attached to the FlipTop. The Midspan is now mounted to the FlipTop enclosure.
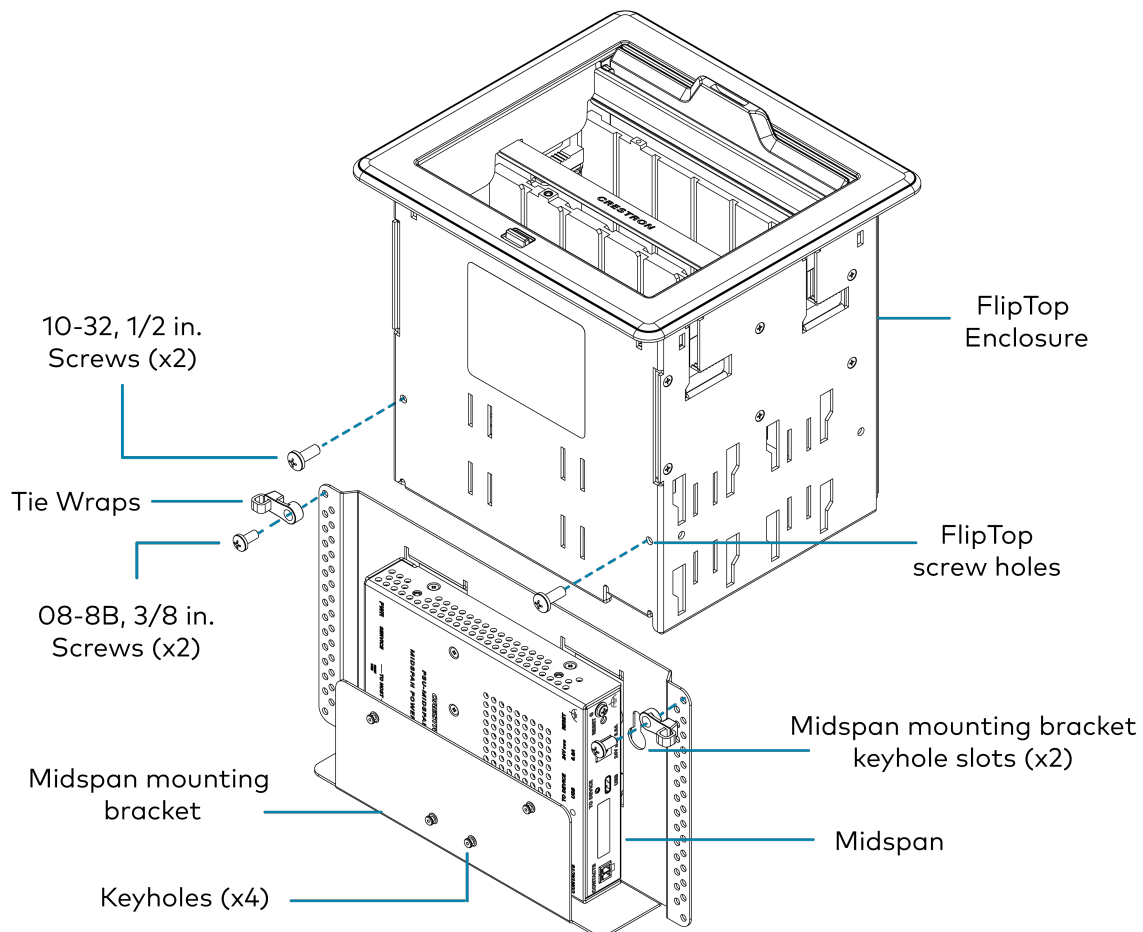
4. Follow steps 1, 7, 8 and 9 from the Mount the Power Supply to a Wall or a Table on page 13 to secure the power supply to the power supply mounting bracket.
5. Place the power supply mounting bracket keyhole slots onto the bottom two keyholes of the Midspan mounting bracket.

6. Slide the power supply mounting bracket down and then to the right to lock it tightly to the Midspan mounting bracket.

Tie Wraps (x2)

08-8B, 3/8 in. Screws (x2)

FlipTop Enclosure

Midspan mounting bracket keyhole slots (x2)

Keyholes (x4)

Midspan

Midspan mounting bracket

Power supply mounting bracket keyhole slots (x2)

Power supply mounting bracket
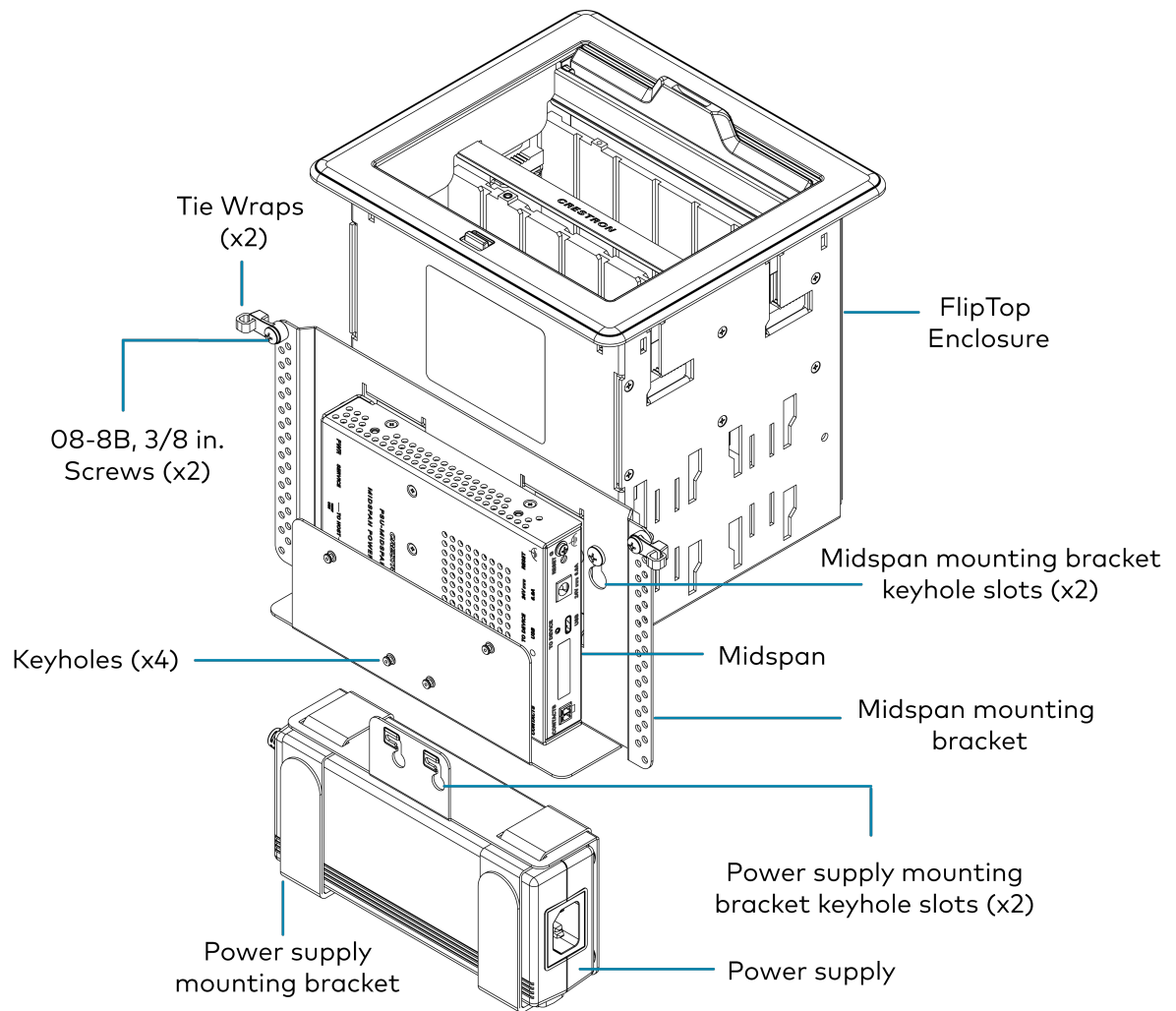
Power supply

The power supply mounting bracket is now mounted to the Midspan mounting bracket.

# Mount the Midspan to a FT2-500 FlipTop Enclosure

The Midspan can be mounted to [FT2-500-MECH-PTL](#) and [FT2-500-ELEC-PTL](#) FlipTop Enclosures.

1. Insert two 10-32, 1/2 in. screws (included) to the FlipTop screw holes on the FlipTop enclosure and turn 2-3 rotations by hand.
2. Loosen the M3 X 0.5 X 6MM screws (included) attached to the bottom of the Midspan mounting bracket.

10-32, 1/2 in.
Screws (x2)

Tie Wraps
(x2)

FlipTop
Enclosure

FlipTop
screw holes

Midspan mounting bracket
keyhole slots (x2)

08-8B, 3/8 in.
Screws (x2)

Midspan

Midspan mounting
bracket

M3 X 0.5 X 6MM screws (x2)
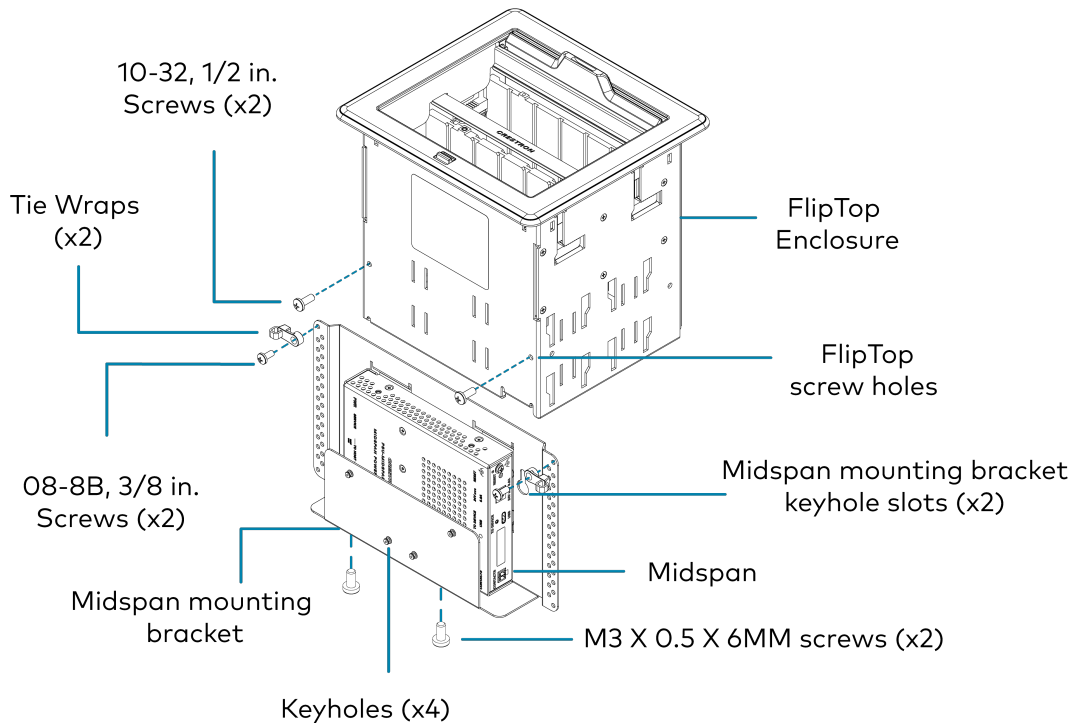
Keyholes (x4)

3. Slide the Midspan to the right.
4. Using the exposed left Midspan mounting bracket keyhole slot as a visual guide, align the inner left and right Midspan mounting bracket keyhole slots on the Midspan mounting bracket.

5. Hang the Midspan mounting bracket onto the two 10-32, ½ in. screws (included) attached to the FlipTop as shown in the image below.

FlipTop Enclosure

Tie Wraps (x2)

10-32, 1/2 in.
Screws (x2)

Midspan mounting bracket
keyhole slots (left)

Midspan

Midspan mounting
bracket

Keyholes (x4)

M3 X 0.5 X 6MM
Screws (x2)
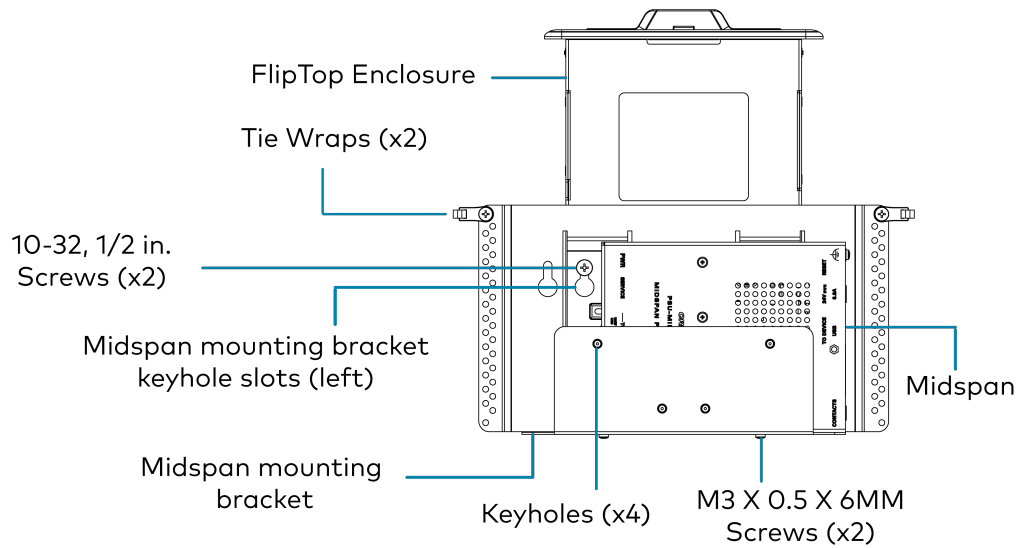
6. Tighten the left 10-32, ½ in. screw attached to the FlipTop.
7. Slide the Midspan to the left.
8. Tighten the right 10-32, ½ in. screw attached to the FlipTop.

FlipTop Enclosure

Tie Wraps (x2)

10-32, 1/2 in.
Screws (x2)

Midspan

Midspan mounting bracket
keyhole slots (right)

Midspan mounting
bracket

M3 X 0.5 X 6MM
Screws (x2)

Keyholes (x4)
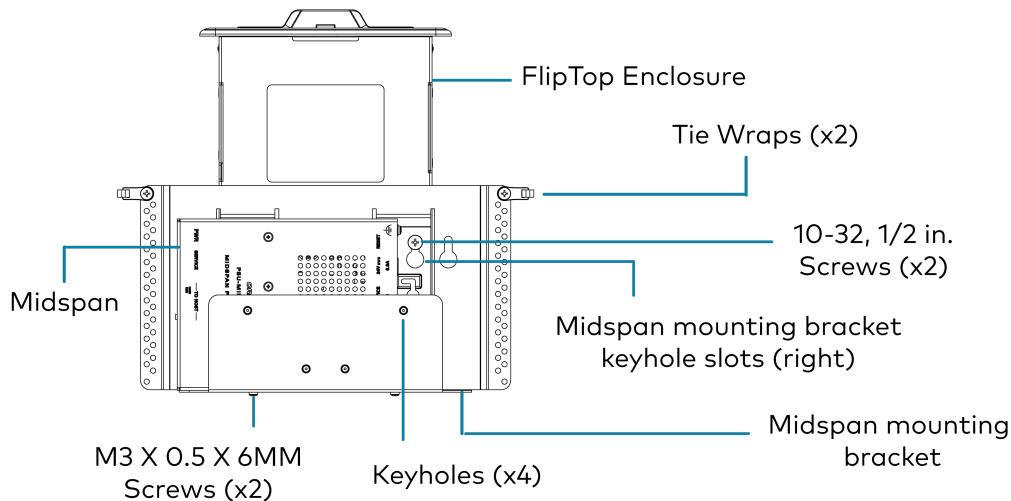
9. Slide the Midspan to the center of the Midspan mounting bracket and tighten the M3 X 0.5 X 6MM screws (included) to the bottom of the Midspan mounting bracket.
10. Follow steps 1, 7, 8 and 9 from the Mount the Power Supply to a Wall or a Table on page 13 to secure the power supply to the power supply mounting bracket.

11. Follow steps 5 and 6 from to mount the power supply mounting bracket to the Midspan mounting bracket.

10-32, 1/2 in. Screws (x2)

Tie Wraps (x2)

FlipTop Enclosure

FlipTop screw holes

08-8B, 3/8 in. Screws (x2)

Midspan mounting bracket keyhole slots (x2)

Midspan mounting bracket

Midspan

M3 X 0.5 X 6MM screws (x2)

Keyholes (x4)

Power supply mounting bracket keyhole slots (x2)

Power supply mounting bracket

Power supply

Mount two Midspans to a FlipTop Enclosure

Two Midspans can be mounted to FT2-202-ELEC-PTL, FT2-202-MECH-PTL, FT2-700-ELEC-PTL, FT2-700-MECH-PTL, FT2-1200-ELEC-PTL, FT2-1200-MECH-PTL, FT2-1400-ELEC-PTL, FT2-1400-MECH-PTL, FT2-500-MECH-PTL and FT2-500-ELEC-PTL FlipTop enclosures.

Complete the following procedure to mount two Midspans to a FlipTop enclosure:

1. Follow steps 1 to 6 from Mount the Midspan to a FlipTop™ Enclosure on page 15. To mount a Midspan to FT2-500-MECH-PTL or FT2-500-ELEC-PTL FlipTop enclosures, follow the steps from Mount the Midspan to a FT2-500 FlipTop Enclosure on page 17.

2. Place the second Midspan mounting bracket keyhole slots onto the top two keyhole slots of the first Midspan mounting bracket.

3. Slide the second Midspan mounting bracket down to lock it tightly to the first Midspan mounting bracket.

4. Follow steps 1, 7, 8 and 9 from the Mount the Power Supply to a Wall or a Table on page 13 to secure the power supply to the power supply mounting bracket.

5. Follow steps 5 and 6 from Mount the Midspan to a FlipTop™ Enclosure on page 15 to install the power supply mounting bracket to the Midspan mounting bracket.
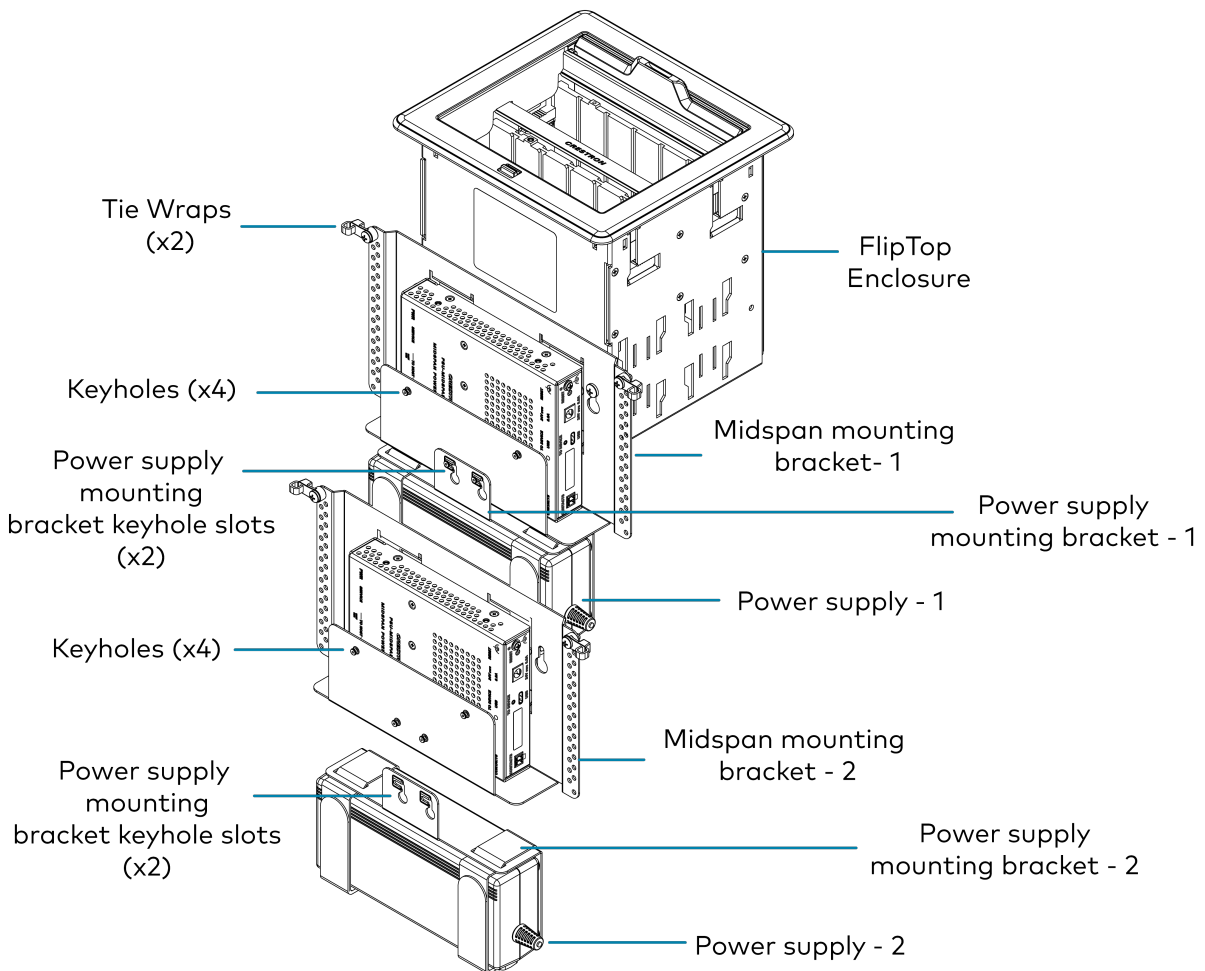
Connect the Device

Make the necessary connections to the Midspan:

> **NOTE:** The PSU-MIDSPAN-USB-1 can be purchased separately without USB-C cables.

- Connect the PW-2460DU power connector to the DC Power Connector.
- Insert the provided CBL-USB3G1-C-C-6 (6ft) or CBL-USB3G2-C-C-3 (3ft) cable into the DEVICE USB-C port and route it to the content ingest.

  > **NOTES:**
  > - Third-party USB-C cables must support DP Alt Mode for video to pass through.
  > - USB-C to HDMI output conversion cables are supported by firmware update 1.6278.00012.

- Insert the provided CBL-USB3G1-C-C-6 (6ft) or CBL-USB3G2-C-C-3 (3ft) cable into the HOST USB-C port and route it to the host source (content source). The cable can also be routed through a FlipTop enclosure if it is present.
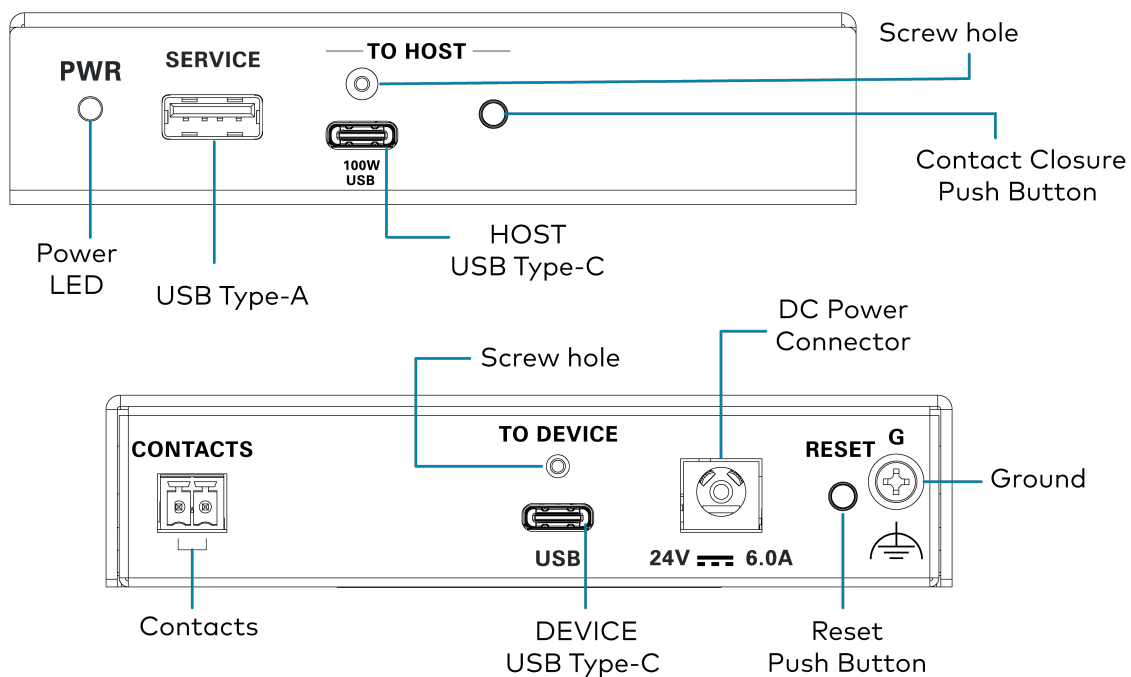
Observe the following when connecting the Midspan:

- The Midspan will not pass video through a USB 2.0 cable.
- The Midspan will still pass data/video if the Midspan **TO HOST** port is connected to a non-charging USB-C port of a third-party device.

- The Midspan passes data with a charging capacity of 60 W when a 60 W rated USB-C cable is connected to the Midspan **TO HOST** port. The CBL-USB3G1-C-C-6 and CBL-USB3G2-C-C-3 cables (provided) are compatible with this feature.
- A phone or tablet can be used as a host or device via USB-C connection to the Midspan. A laptop can only be used as a host and should be connected to the Midspan **TO HOST** port.
- The contact closure push button can be used to trigger a Crestron control processor.

Cable Management

The tie wraps (included) are used to manage and secure the cables connected to the Midspan when the Midspan is installed to a wall/table or a FlipTop enclosure.

Insert two 08-8B, 3/8 in. screws (included) through the tie wrap holes and then through any screw holes on the side bar of the bracket to keep the cables secured.
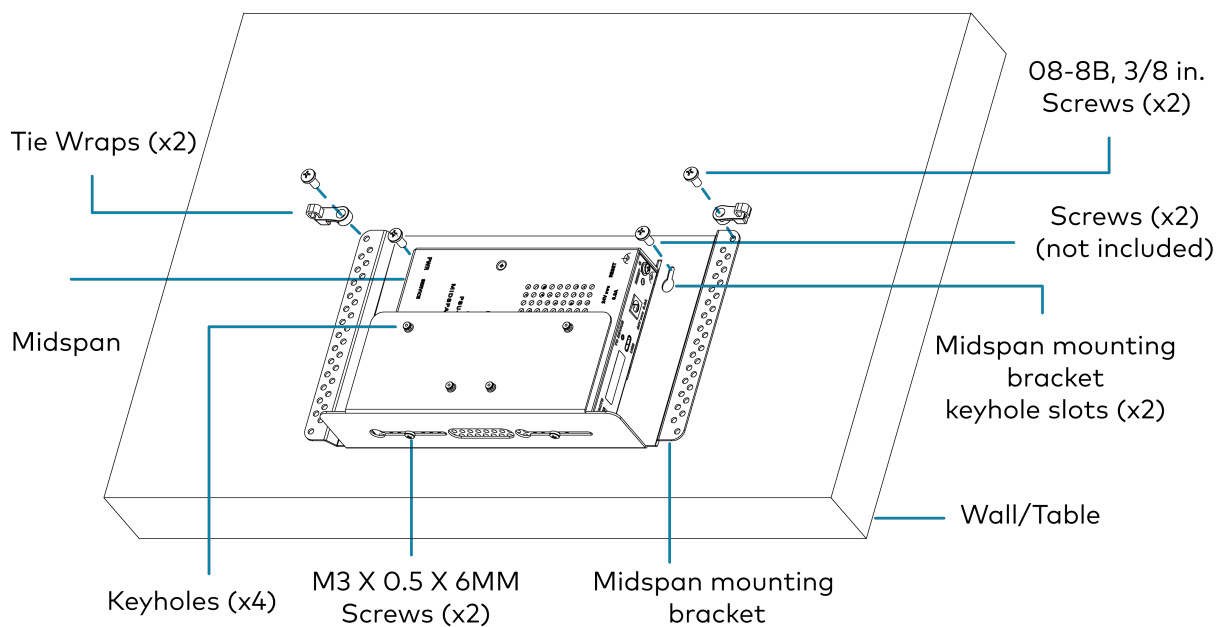
Observe the LEDs

Refer to the following table and diagram for information about the LED indicators on the device.

LED Indicator	Color	Meaning
Power	Solid Orange	Power is being applied to the device.
	Solid Green	The device firmware has completed booting. The device is now operational.

LED Indicator	Color	Meaning
Firmware Upgrade	Orange/ Green (Blinking)	The LED starts blinking if the FW upgrade image is found in the USB stick when it is inserted into the Midspan USB-A Service port. Blinking indicates the device firmware upgrade is in progress.
	Solid Orange	The device firmware failed to upgrade.
Error	Solid Orange	The device firmware failed to boot.

Configuration

This section provides the following information:

- Firmware Upgrade

Firmware Upgrade

A USB stick (not included) is used to upgrade the device firmware.

Complete the following procedure to upgrade the Midspan firmware:

1. Download the firmware .bin file from the resource tab of PSU-MIDSPAN-USB-1-C KIT.
2. Copy .bin file to the root folder of a USB stick.
3. Create commands.txt file in the same root folder with the following two lines:

```
1  #VER -v
2
```

> **NOTE:** Line 2 remains empty.

4. Start the device.
5. The PWR LED turns green indicating the device is active.
6. Insert the USB stick into the service port of the Midspan.
7. Once the PWR LED flashes yellow and green, it indicates the firmware upgrade is in process.
8. Once the PWR LED turns solid green again, it indicates the firmware upgrade is complete. The firmware upgrade takes about a minute to complete.
9. Unplug the USB stick from the Midspan Service port and plug it into a computer.
10. There should be a new file named result.txt present in the root folder.
11. The upgrade is successful if the versions in the result.txt match the versions in the release notes.

Resources

The following resources are provided for the PSU-MIDSPAN-USB-1-C KIT.

> **NOTE:** You may need to provide your Crestron.com web account credentials when prompted to access some of the following resources.

Crestron Support and Training

- Crestron True Blue Support
- Crestron Resource Library
- Crestron Online Help (OLH)
- Crestron Technical Institute (CTI) Portal

Programmer and Developer Resources

- help.crestron.com: Provides help files for Crestron programming tools such as SIMPL, SIMPL#, and Crestron Toolbox™ software
- developer.crestron.com: Provides developer documentation for Crestron APIs, SDKs, and other development tools

Product Certificates

To search for product certificates, refer to the Product Certificates section of the Crestron Resource Library.

Related Documentation

- Crestron Technical Documentation